

Abstract

Establishing the Normogram of CRL and NT Thickness in a Malaysian Hospital Population: A Prospective Observational Study

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Objective:

To establish a normal range for crown rump length (CRL) and nuchal translucency (NT) measurement in fetuses between 11-13⁺⁶ weeks gestation in Universiti Kebangsaan Malaysia Medical Centre (UKMMC).

Methods:

This is a prospective observational study conducted in pregnant mothers with singleton pregnancy in whom fetal ultrasound was performed and fetal CRL and NT thickness is measured between 11 – 13⁺⁶ weeks period of amenorrhea at our antenatal clinic. The Pearson correlation coefficient was used to calculate the relationship between NT measurement and maternal age. The relationship between fetal NT thickness and CRL was analysed with the linear regression method. The normal range for NT measurement was expressed as fifth, twenty-fifth, median, seventy-fifth and ninety-fifth percentiles.

Results:

The total number of pregnancies recruited was 240. The mean maternal age was 32.94 ± 4.77 years (range 21- 46 years). Maternal age did not influence the NT measurement ($r = -0.02$, $P = 0.73$) but it significantly influenced the CRL ($r = 0.16$, $P = 0.013$). The mean and median CRL were 62.99 ± 8.74 mm and 62.7mm (range 41- 82mm) respectively. The mean and median NT measurements were 1.49 ± 0.41 mm and 1.40mm (range 0.8-3.6mm) respectively. The median gestational age at NT evaluation was 88 days (12 weeks + 4 days). The regression equation relating median NT thickness to CRL was described as follows: Expected NT thickness (mm) = $0.69 + 0.012 \times \text{CRL (mm)}$ ($R^2 = 0.07$, $p < 0.05$).

Conclusion:

In this study, fetal NT thickness increases with CRL and gestational age. There was no correlation between NT thickness and maternal age. The normative data of NT thickness obtained can be used as reference for the Malaysian population.